BLANKOM®

Professional Headend Solutions

Operating instructions

8-fold IP-/ ASI-TV Modulator

IP/ SFP/ ASI (H.264/ AVC, MPEG2) → ATV (8x AM)

PALIOS-IPM4
Part N°: 5105.10

...Selling Signals

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1. Safety and operating instructions

When installing, starting-up and adjusting the modules, it is necessary to consider the system specific references in the instruction manual.

The modules may only be installed and started up by authorized technical personnel. Only the mounting styles described in the Quick Start Guide are supported.

When installing the modules into the receiving points, the adherence of the EMC regulations is to be ensured.

The installing and wiring have to be done without voltage. For installation, only the supplied accessories (DIN rail clip with screws and 19“ accessories) may only be used.

All active modules may only be powerd by the power supplies HELIOS, HELIOS-P1 or QUASARIOS. Only connect the module with the accessory cables provided.

The mains voltage and the operating voltage of the modules working by DC have to be in compliance with the operating parameters described in the technical data.

With all work the defaults of the DIN EN 50083 have to be considered. It is especially important to follow DIN EN 60728-11[2].

The unit must only be mounted vertically. The ventilation slots as well as the circulation perforation of the modules is not be obstructed in any way.

If installed in mounting cabinets a adequate heat circulation must be guaranteed. The mounting in closed cabinets without air sufficient flow is **not allowed**.

For **DIN rail mounting** is important to note that between the heat sink and a neighboring module, a distance of 0,79“ is required. If the modules mounted on top of each, so they must be spaced 7,87“ apart.

For **19“ mounting** all modules in the rack must be fitted with 19“ Edge Guide. Mounting the module using only the screw holes at the front panel is insecure and discouraged. Furthermore, the operation of a fully occupied rack is only allowed with an underlying 1-U fan box (at least 3 fans, 6,93“ deep).

WEEE-Reg.-Nr. DE 50389067

2. Device variants

PALIOS-IPM4	5105.10	IP/ SFP/ ASI (H.264/ AVC, MPEG2) → ATV (8x AM)

3. Software options

CKB 200	5100.50	activation SNMP v3
CKB 201	5100.51	activation test lines
CKB 202	5100.52	activation subtitles
CKB 207	5100.57	activation BISS-Function
CKB 210	5100.60	activation SFP-Port
CKB 211	5100.61	activation ASI-Port
CKB 227	5100.67	activation marquee

4. General

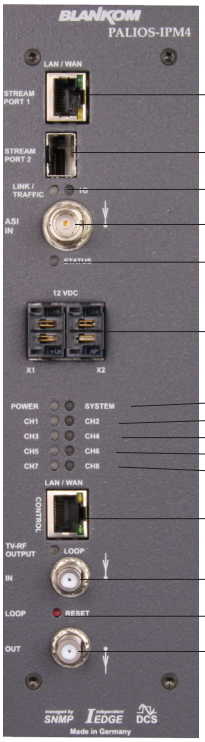
The Smart Business Line (SBL) is a modern headend system, that is distinguished by its modular and compact design. A userfriendly operating concept facilitates setup, configuration and maintenance of the system.

The PALIOS-IPM4 module selects eight programs from up to eight fed-in IP transport streams resp. one ASI transport stream and converts these into analoge TV signals to transmit it in cable networks. At this a maximum of eight analog television channels are generated from the H.264/ AVC resp. MPEG2 fed-in transport streams.

5. Main features

- 8 x IP SPTS/ MPTS input
- IP streaming via RJ45 or SFP with redundancy
- 1x ASI input
- MPEG 2/4 HD/ SD decoding
- multi-standard PAL modulator
- IEdge signal processing
- RF output switchable as single or with loop
- control of the module via HTML or SNMP

6. Front view



Stream port 1 (RJ 45) incl. LED‘s
Stream port 2 (SFP)
Stream port 2 LED‘s “LINK/ TRAFFIC“ + “1G“
ASI input
ASI LED “Status“
Power connections
Status LED “POWER“/ “SYSTEM“
Status LED channel 1/ channel 2
Status LED channel 3/ channel 4
Status LED channel 5/ channel 6
Status LED channel 7/ channel 8
Control port (LAN/ WAN) incl. LED‘s
Output coupler “input“
Reset button
Output coupler “output“

Independent EDGE

DCS

managed by SNMP

7. Functional description

The module receives a data stream via Gigabit Ethernet. It can receive up to eight transport streams from the included IP encapsulated transport streams. The eight transport streams are further processed in eight H.264/ AVC & MPEG2 decoders. A high-performance FPGA does the analogue TV modulation and the freely adjustable up-conversion into the cable network range (45 ... 862 MHz).
The eightfold modulator is adjacent channel compatible. A high-speed digital→analogue converter (DAC) is responsible for the excellence output signal. After amplification and sum level adjustment the cable signal is coupled through a switchable directional coupler to the output jacks.

8. Meaning of the LED‘s

8.1 LED’s at the 10/ 100/ 1000 Mbit stream port 1

Designation, color	Status	Meaning of display
GbE connect LED, green	permanently on	only illuminated when the connection is a GbE connection (does not light up at a 10/ 100 Mbit connection)
	off	no GbE connection
Connect/ data LED yellow	permanently on	cable connection is established
	flashing	data is received
	off	no cable connection

8.2 LED's at the 10/ 100/ 1000 Mbit stream port 2

Designation	Color	Status	Meaning of display
1G	green	permanently on	only illuminated when the cable connection is a GbE connection (does not light up at a 10/ 100 Mbit connection)
		off	no GbE connection
LINK/ TRAFFIC	amber	permanently on	cable connection is established
		flashing	data is received
		off	no cable connection or option is not enabled

8.3 LED at the ASI socket

Designation	Color	Status	Meaning of display
STATUS	green	permanently on	ASI transport stream is present
		flashing	no ASI transport stream
		off	option is not enabled

8.4 Status LED's

Designation	Color	Status	Meaning of display
POWER	green	permanently on	module is on
	amber	permanently on	module is in standby
		off	module is off, operating voltage is not applied
SYSTEM	green	permanently on	module is ready
		flashing	software update is running
	amber	permanently on	temperature is high, fan is activated
		flashing	temperature is critical. The module will no longer work or is forced to shut down
		off	module is not ready
CH 1 ... CH 8	green	permanently on	channel operates without error
	amber	permanently on	error warnings, depending on signal: - input and/ or output without sync - input sync, but in bad quality (eg. mosaic effect in the TV picture)
		flashing	hardware is faulty
		off	channel is off

8.5 LED's at the 10/ 100 Mbit control port

Designation, color	Status	Meaning of display
Connect LED, yellow	permanently on	network cable is connected
	off	no cable connection
Data LED, green	flashing	data is exchanged
	off	no data exchange

9. Setting by web interface

To use all functions of the module activate Java Script in your browser settings.

Settings via checkbox are applied immediatelly, but not stored in memory! So they would be lost on a possible restart of the module. To save these settings the "send" button must be pressed.

Please send and store your settings by pressing the „send" button after each change.

9.1 Network connection to the computer

System requirements:

- PC/ laptop with 10/ 100 Mbit Ethernet interface
- Internet browser (e.g. Windows Internet Explorer), JAVA script capable

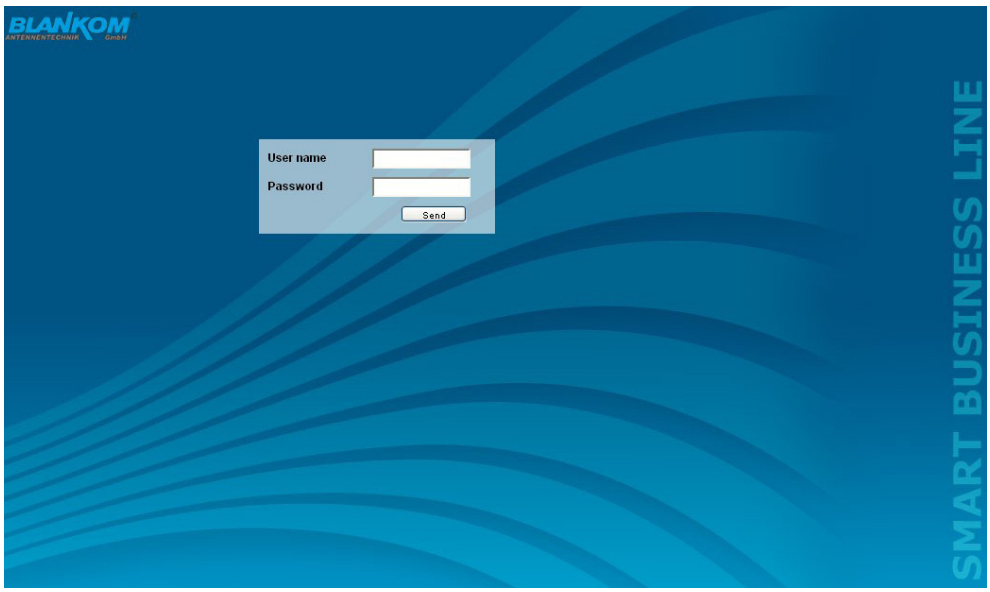
Setup the connection:

The PALIOS-IPM4 has to be connected to PC network using an Ethernet cable. The default IP address of the module is 192.168.1.100.

In order to access the web interface of the PALIOS-IPM4 from a PC, the PC has to be in the same subnet (192.168.1.XXX; subnet mask 255.255.255.0), where XXX is not used by any other module in this subnet.

If multiple PALIOS-IPM4 are connected to the same network each module must be set to its own unique IP address to avoid address conflicts.

After these settings, the IP address of the PC has to be adjusted to match the network. Now the modules can be accessed via browser with the new IP address.



If activated in *Setup→GUI Settings→Activate user and keyword check* the user has to log in now (»chapter 8.2.6).

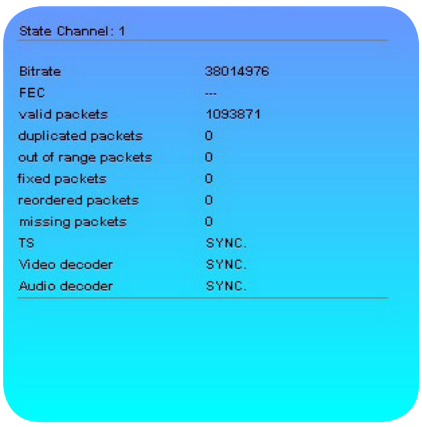
After successful registration or a connection establishment without password (default setting) the start page of the module is displayed (»chapter 8.2.1).

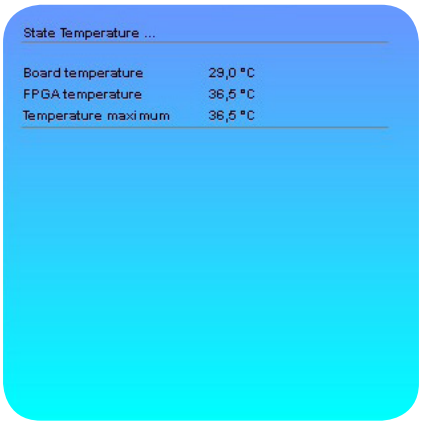
9.2 Setting of individual parameters

Here you can set certain parameters of the module or perform configurations. The various setting menus can be selected in the navigation tree on the left side. The setting is supported by an online help. If you mouse over a parameter explanations of this parameter are displayed in an orange colored text box in the lower part of the screen. By setting in the "**Setup**" menu (»chapter 9.2.6) may be selected so that the help appears in the status bar of your browser. If appropriate setting changes in the browser options are necessary.

By default status information for the module are displayed below the navigation tree. An option to move it on the right side instead is available (»chapter 9.2.6).

All eight channels are listed individually. A green LED symbol in front of "**channel 1 ... 8**" means that input and output are synchronized and that the channel operates without error. An orange colored symbol indicates that an error has occurred in that channel. An overview of the status of various parameters of the channel is obtained by clicking the corresponding channel. A transparent LED symbol means that the channel is not configured or the RF output is turned off.





If you **click on the channels** an overview window is displayed. The pop-up window closes after 20 seconds or by cklicking in its lower part.

„System" and „Power" indicates the connection status between the network interface and the module.

In all menus it's possible to switch the language between German and English on the top of the right side.

9.2.1 Menu ”Overview”

This page provides a status overview of the eight channels. If a channel is working without errors, “SYNC“ is displayed. If the RF power is turned off, the display “Off“ appears behind the respective channel.

Below the staus window all modules belonging to the headend are listed (»*Setup* chapter 9.2.6). So you can see which modules are affected by functions across modules like the NIT exchange between modules of the QAMOS group.

The individual components of a headend are listed with their IP address. The IP address is a link, so you can switch to the next module. If no headend was configured, a “**Search**“ button is displayed. It opens the “**Setup**“ menu and scans the network for other SBL modules. Then all available modules are listed. They can be selected and added to the headend.

By clicking the “**Logout**“ button the user is logged out and the login window is displayed.

9.2.2 Menu “IP input”

This is the menu for the network configuration of the streaming port and the eight IP transport streams, from which the eight desired programs for transmitting can be selected.

First the configuration options for the two stream ports are displayed.Stream port 2 is only available after enabling the software option (»chapter 9.2.6). The IP address, subnet mask and gateway is configured for each port.

The next step is to configure the setup parameters of the eight IP input transport streams (IP input channels). Again, IP address, port and transport protocol (UDP or RTP) have to be entered for each IP channel. Press the “**send**“ button to save the settings.

Unused ports are disabled by entering the IP address 0.0.0.0.
Identical settings within these 8 IP channels are not allowed and automatically marked red.

Note:

Some switchesapply configuration changes for the multicast group after the set query interval has expired.

Some switches ignore unsolicited IGMP join message. If the querier in the switch is set to a longer interval, the switch might ignore the emitted IGMP message and thus the srtream is not transmitted instantly after the configuration changed.

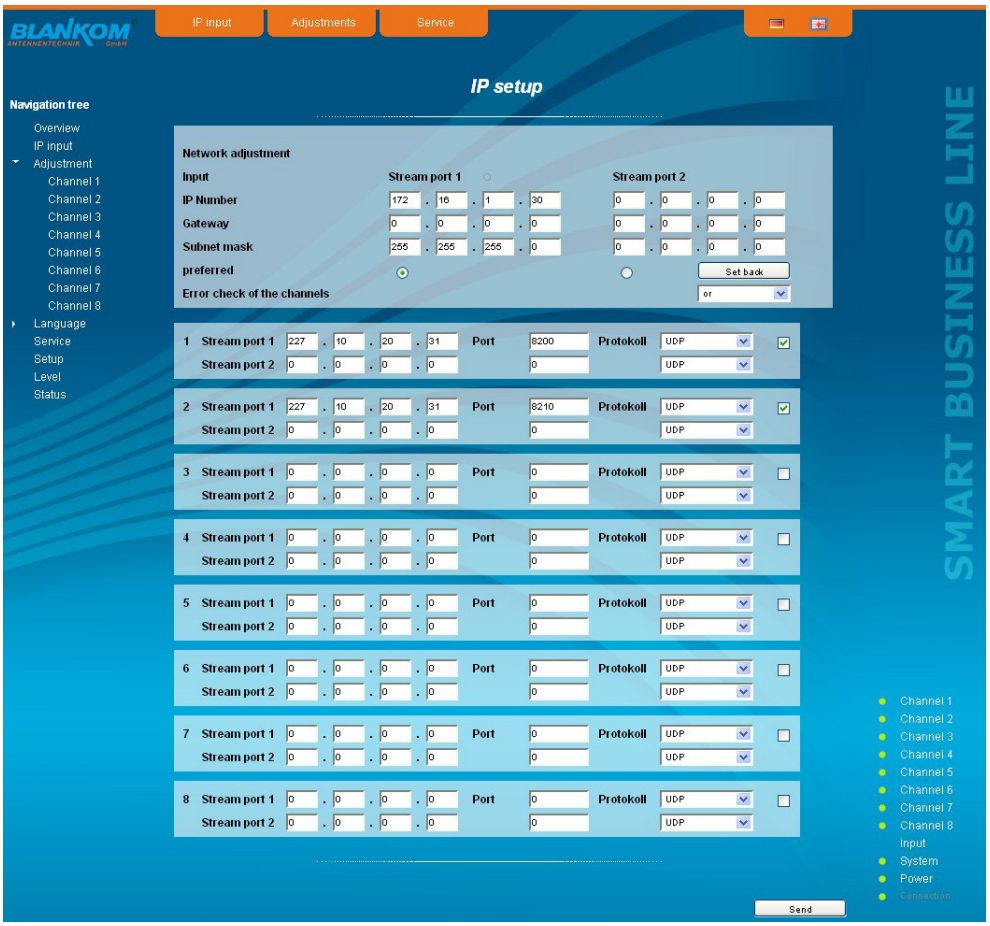
Upon expiration of the query interval, the switch checks its membership in multicast groups. The module responds. The response is accepted by the switch, which then transmits the stream to the module.

9.2.2.1 SFP option

The SFP option allows the connection of different modules to the IP input. Depending on the SFP module various management and media types can be connected to the PALIOS-IPM4. So the IP input can be expanded by another IP data source. The SFP module requires stream port 2, with the result that either “Stream port 1“ or “Stream port 2“ can be used as an IP input.

One of the two IP inputs can be defined as the preferred source and the other IP input as redundancy source. If an IP data source fails, it‘ll switch to the other data source. Individual rules can be defined. First you have to decide whether an IP input channel is included in the monitoring. In addition, you have to choose when to switch: either when one input channel fails or when all monitored channels are failing. The switching will occur even no signal is present on the redundancy input.

The switch back to the preferred IP input is not automatically. It has to be done manually via the user interface. Note that an automatic switch based on the defined rules will not occur until data was received on the monitored channels once.



In the mask of the network settings the option of selecting the preferred IP input is displayed. The selection is done by pressing the respective option button.

Select the line „**error check of the channels**“ as described above. Choose „or“ to perform the redundancy switchover if any one of the monitored channels is failing. Choose „and“ to perform the redundancy switchover if all monitored channels fail.

The checkbox on the right side marks if the channel is included in the monitoring.

9.2.3 Menu ”Program”

This is menu for the program selection of the output channels. The current channel allocation of the PALIOS-IPM4 module is listed. The following settings per channel are available:

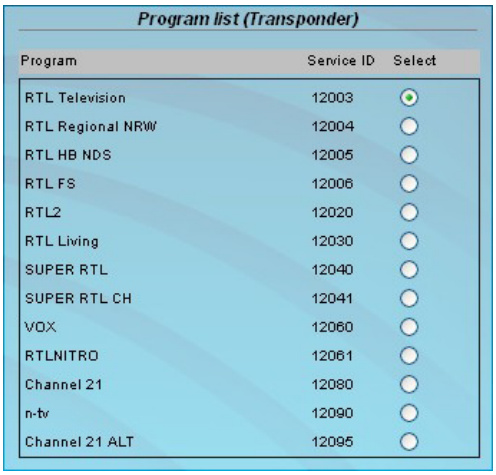
- column **Input** Select the transponder
- column **Program** Select the preferred program. If the program is available in multiple languages, specify language and subtitle in the next two colums.
- column **Output frequency** Set the channel for the selected program

Double allocation of the eight output channels is checked automatically. Use the check box “RF“ to set the RF output to “**on**“ or “**off**“.

9.2.4 Menu ”Settings”

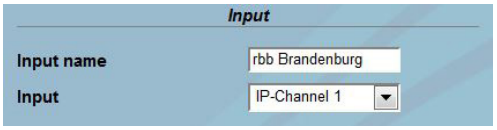
Each channel can be adjusted to your individual requirements. The channels is selected by either clicking left in the navigation tree or by clicking on the tabs above the setup tables.

The following parameters are adjustable:

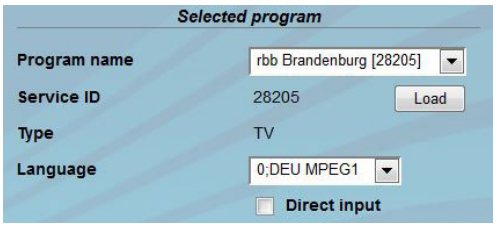


Program list (Transponder)

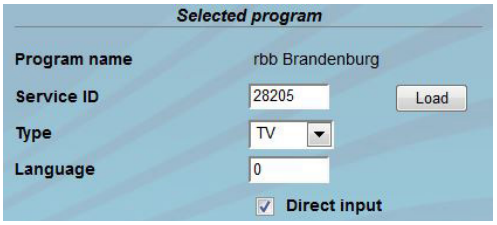
If "Program selection with select box" in *Setup → GUI settings* is deactivated (»chapter 9.2.6), the screen at the left for program selection is displayed. All programs of the selected transponder are listed with name and service ID. The selection of the program is done by marking the respective select box. The program name and the other parameters of the program are applied automatically. In this case the program name in the menu "Selected program", variant 1 is not selectable.



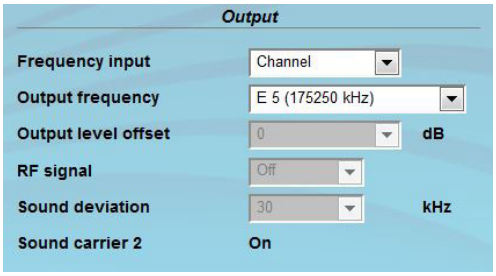
Input	*input parameters of the channel*
Input name	e.g. name of the program, editable
Input	selection: IP input channels 1 ... 8, ASI input



Selected program	*variant 1: program selection menu*
Program name	selection of the program from the program list of the transponder of the selected IP TS
Load	reloads the program list
Service ID	displays the service ID of the selected program
Type	displays the type of the program
Language	selection of the available language
Direct input	selection menu, manual input (see below)

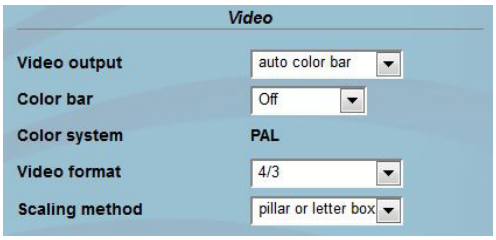


Selected program	*variant 2: direct input*
Program name	displays the name of the program, which was selected in the input menu
Load	reloads the program list
Service ID	service ID of the requested program, range: 0...65535
Type	selection of the program type: TV, Radio
Language	language number, range: 0..255

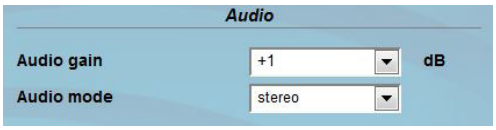


Output	*output parameters of the channel*
Frequency input	selection: channel, frequency[1]
Output frequency	selection from channel table/ input in kHz[1]
Output level offset	level offset[2] display
RF signal	selection: On, Off (Off at Time control „off")
Sound deviation	selection: 30, 50 kHz[3]
Sound carrier 2	adjustable in Setup menu for all channels

[1] If frequency input "channel" is selected, the output frequency can be chosen in the pre-selected channel list (» *GUI settings* chapter 9.2.6). If "frequency" is selected, then the output frequency is selectable in kHz steps.
[2] Adjustment of the offset of each channel to the basic level (» *GUI settings* chapter 9.2.6)
[3] Only selectable, if sound carrier 2 is set to "Off". If sound carrier 2 is set to "On", the sound deviation is permanently 30 kHz



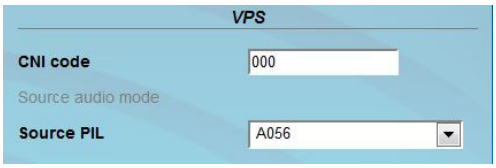
Video	*setting of the video parameters*
Video output	selection: On, auto Off, auto color bar
Color bar	selection: On, Off
Color system	adjustable in Setup menu for all channels
Video format	selection: 4/3, 16/9
Scaling method	selection: none, pillar or letter box, fullscreen center (cut out)



Audio — *setting of the audio parameters*

Audio gain — adjustment range: +6...-20 dB
Audio mode — selection 1: mono L, mono R, dual, dual invers, stereo, auto[1]
selection 2: mono L, mono R, mono L+R, auto[2]

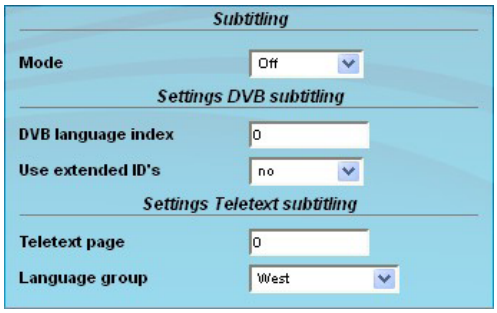
[1] if sound carrier 2 is set to "On" (» *GUI settings* chapter 9.2.6)
[2] if sound carrier 2 is set to "Off" (» *GUI settings* chapter 9.2.6)



VPS — *setting of the VPS parameters*

CNI code — adjustment range: 0x000…0xFFF (hexadec.)

Source PIL — selection: A056(PDC), A056, PDC, TimerControlCode



Subtitling[3] — *adjustment of the subtitles*

Mode — selection: Off, Teletext, DVB

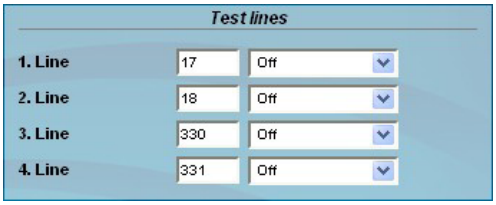
Settings DVB subtitling

DVB language index — adjustment range: 0...255
Use extended ID's — selection: yes, no

Settings teletext subtitling

Teletext page — adjustment range: 0..65535
Language mode — selection: West, East, Russian, Arabic, Farsi

[3] only available, if "Subtitling" option is enabled (»chapter 9.2.6)



Test lines[4]

The PALIOS-IPM4 offers the opportunity to output test signals on up to 4 image lines from the following selection: Off, CCIR 17, CCIR 18, CCIR 330, CCIR 331, Sin(x)/ x, Ramp. As a default, the image lines 17, 18, 330 and 331 are selected.
The image lines selection is editable, i.e. the test lines can be output on each image line in the range 1..625.

[4] only available, if "Test line" option is enabled (»chapter 9.2.6)

Decryption settings[5]

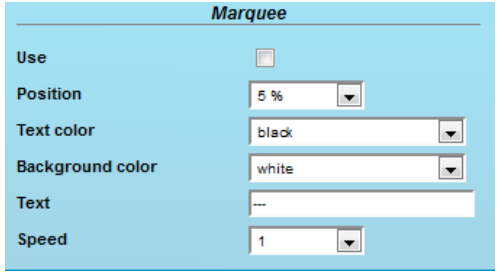
BISS key — input of the 12-digit code in BISS mode 1 or of the 16-digit code in BISS mode E
BISS-E injected ID — input of the 14-digit code in BISS mode E, no input in BISS mode 1

[5] only available, if "BISS" option is enabled (»chapter 9.2.6)

Time Control[6]

click the check box, to (de-)activate the functions

Switch ON — select the weekday mode (Mo, Tu, ... Su); Mo to Fr; Mo to Sa; Sa to Su and daily and start time
Switch OFF — select the shutdown date and time



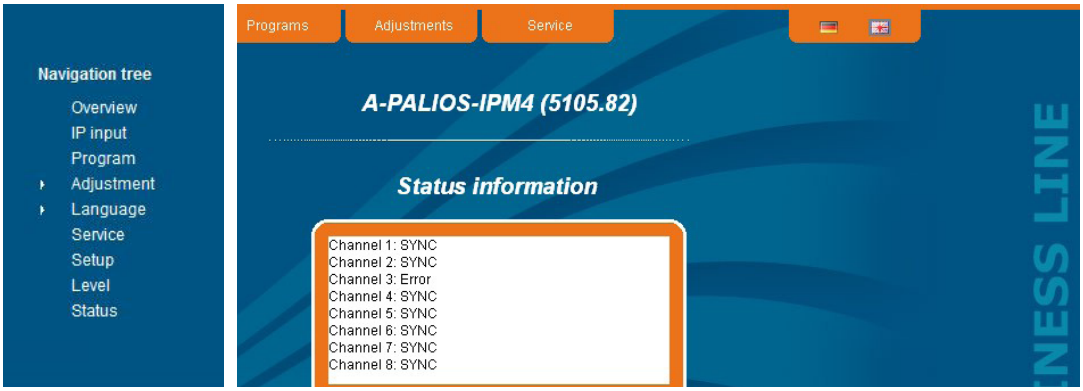
Marquee[7]

Use — the checkbox (de-)activates the marquee
Position — positions the text between 5 ... 100% of the vertical position on the screen
Text color — available in black or white
Background color — color setting of the font background, based on the selected font color or transparent
Text — the content of the marquee
Speed — set how fast the text is displayed

[7] only available, if "Marquee" option is enabled (»chapter 9.2.6)

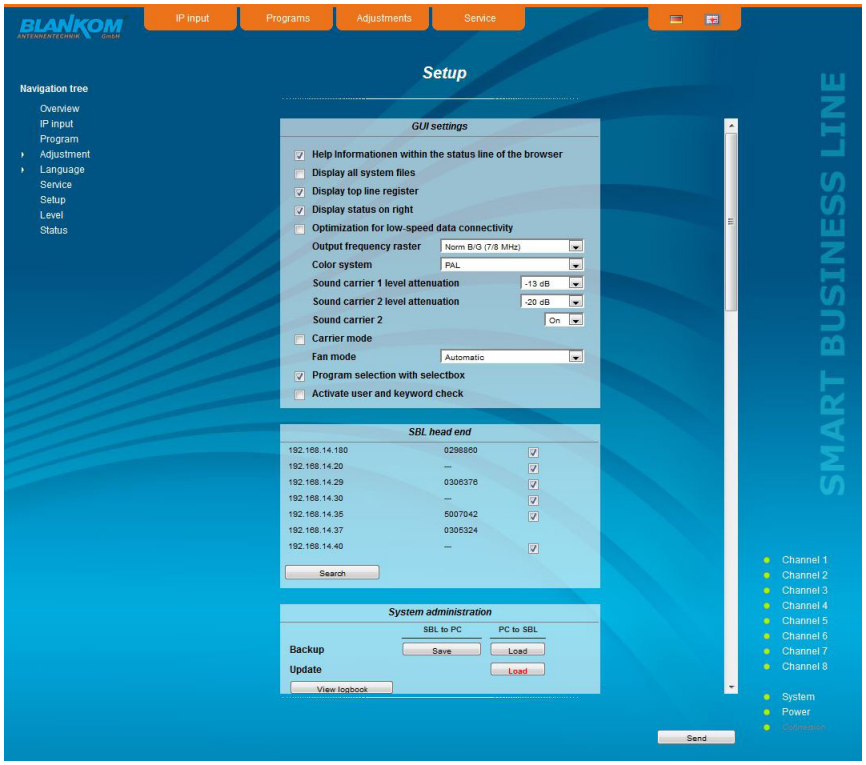
9.2.5 Menu ”Language”

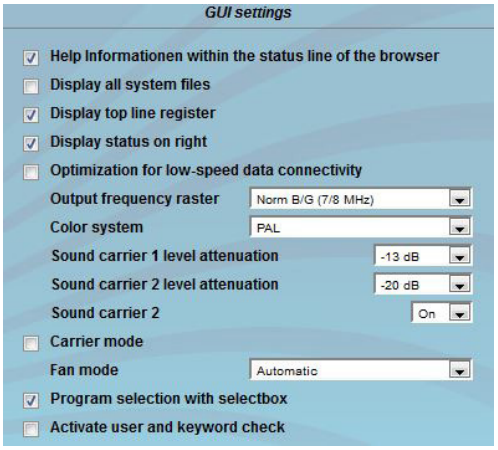
In this menu the user interface language can be set. You can choose between German and English. The adjustment can be made either in the navigation tree at the point “**language**“ or on the top right via the **language selection box**.



9.2.6 Menu ”Setup”

In this menu, various administrative and system settings can be made.





Specifically, the following can be configured:

GUI settings

help information in the status line of the browser
By default, the online help is displayed in an orange colored text box at the bottom of the page. If this option is selected, the help texts are displayed in the status bar of your browser instead (must be allowed in the browser settings).

Display all system files
By default *"System administration→Backup"* all system files are up- / downloaded as a single file. By selecting „display all system files" all system files are displayed. Now specific files can be selected for up- / download.

Display tabs
By default, the tabs are shown in the upper part of the user interface. Unselect this option to remove them.

Display status on the right side
By clicking the box, the status of the channels or the system is shifted to the right of the user interface.

Optimization for low-speed data connectivity
Selecting this option reduces the image size to accodate a low-speed data connection (GSM).

Output frequency raster
Availabe options are: B/G, D/K, M and L raster. In case of D/K1 the sound carriers are at 6,5/ 6,25 MHz, D/K2 at 6,5/ 5,74 MHz and D/K3 at 6,5/ 6,74 MHz, the raster for M is at 6 MHz and for L at 8 MHz. Based on this selection the group delay filter is set for standard B/G, D/K, M or L raster.

Color System
You can choose between PAL, SECAM and NTSC.

Sound carrier 1 and 2 level attenuation
The setting for the audio carrier 1 is at -10 ... -19 dB, for the sound carrier 2 at -17 ... -26 DB. Sound carrier 2 can be switched on or off in the drop-down menu.

Carrier mode
Unmodulated signal for testing.

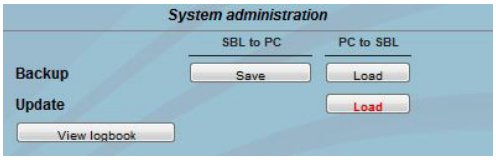
Fan mode
Available settings are Auto to ON.

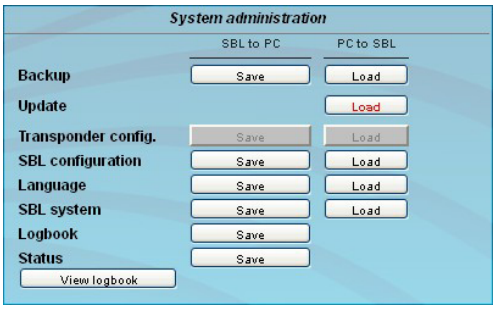
Program selection with select box
If is deactivated, the program selection is done via *program list* in the adjustment menu. Otherwise the program selection is done in the field "*Selected program*" (»chapter 9.2.4).

Activate user and password check
This option can only be deactivated by the administrator. If disabled, no login is required (»chapter 9.1).

SBL headend

Lists all SBL modules, which are located in the same network. By pressing the "**Search**" button the list is updated. All marked modules belong to the headend and are displayed on the "**Overview**" page.





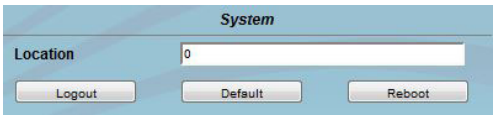
System administration

The default is to save or load the complete configuration (see first picture).

Backup
Here the system files can be loaded or saved as a package (except logbook. txt and status.xml). Thus, it is possible to copy the system files from a PALIOS-IPM4 module to another. If under *GUI setup→Display all system files* is selected, the system files can also be loaded or saved separately (see figure below). Additional system files can be added.

Update
Click the „**Load**"-Button to load a software update.

The button "**View logbook**" leads to an overview, in which all the processes have been documented since the start of the GUI. Each operation is listed by date, time and description. If operations have been executed, the logged on user, who initiated the action, is saved too. By pressing of the "**Erase**" button all entries are deleted, only possible by the administrator.



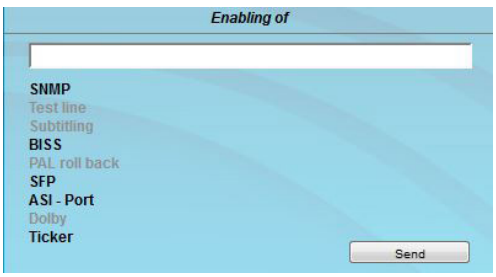
System

Location
In this field a name for the PALIOS-IPM4 can be entered to identify the module easily. The name will appear on the top right of the website below the language selection box. It is provided via SNMP: Iso(1)org(3).dod(6).internet(1).mgmt(2). mib.2(1).system(1).sysLocation(6).

Logout
restarts the user interface

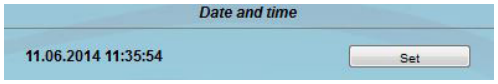
Default
reset to factory default

Reboot
restart of the PALIOS-IPM4 module



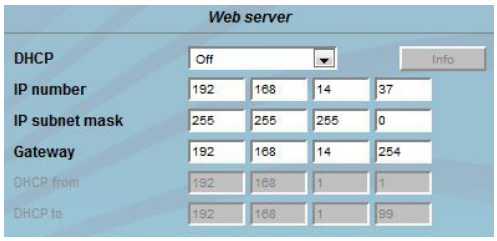
Enabling of

Possible software options for the PALIOS-IPM4 module can be enabled. The registration code must be entered in the input field and by pressing the "**Send**" button. Activated options are displayed in black, inactive are grayed out.



Date and time

Clicking the "**Set**" button, the date and time will be set to that of the PC.



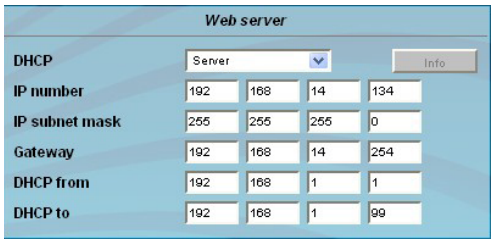
Web interface

The PALIOS-IPM4 supports the DHCP functionality. DHCP-Client is factory default. Note, that after each factory reset the PALIOS-IPM4 is set to "DHCP-Client".

If the **DHCP functionality** is set to **"Off"**, the appropriate fields for IP number, subnet mask and gateway can be set manually to fit the network.

If the module is set as **"DHCP-Client"**, it automatically obtains an IP address from the DHCP server on the network. The manual network settings are disabled.

By pressing the "**Info**" button the automatically assigned network configuration of the module is displayed. Close the window by clicking in its lower area or wait 20 seconds.



Please note: if the module is set as **"DHCP-Server"**, the IP address 192.168.1.100 **must not** be set. If you select this address an error message will be displayed.

In addition to the IP settings, you can configure the DHCP range from which the connected client IP addresses are assigned. The address range has to match the IP address and subnet mask of the server and should not be too small. The default is 192.168.1.1 to 192.168.1.99.

Along with the DHCP server a local DNS (Domain Name Server) will be set up. To use it in full extent a connected PC/ laptop must be configured as a DHCP client. Note that, using Windows, not only the IP address but also the DNS server address has to be obtained automatically.

If the module is configured as a DHCP server or client and the client has received an IP address successfully, the module can be accessed via a web browser using its name. This name is composed of the prefix "sbl" and the module number that is printed on the back of the module and on the packaging. For example, the module with the number 0123456 can be found under "sbl0123456". It might be necessary to add the domain name. In case that the module was configured as a server, the name of the domain is "sbl0123456.sbl". If another DHCP server is used, ask your administrator for the domain name.

An example for the simplification of the configuration or operation of the headend via DHCP is, that a SBL module is configured as a server, the remaining modules and the connected PC/ laptop are configured as a client.

By calling "dhcp.sbl" in the browser the GUI of the server module is loaded. Now the headend can be read. So all connected components are found and listed. The headend can now be stored in the *Setup→System administration*. By selecting the respective modules link in the headend overview, you can switch to the other modules user interface quickly.

SNMP option

The SNMP settings are only available after the "SNMP" option was enabled (*»Enabling of).*

First section: The "**Mode**" selection field enables or disables the SNMP functionality, including the sending of traps. The selector "**Version**" sets the SNMP version (version 1, 2 or 3). In the two fields below, the reading and writing via SNMP is separately indicated for the versions 1 and 2.

In version 3, these two fields are disabled. Here, all registered users of the module *(GUI Settings→Passwords)* have the automatic read access to SNMP. The write access can be enabled or disabled for each user by clicking the SNMP-check box in the "**Passwords**" menu.
By clicking the "**MIB**" button the MIB of the module is generated and can be downloaded.

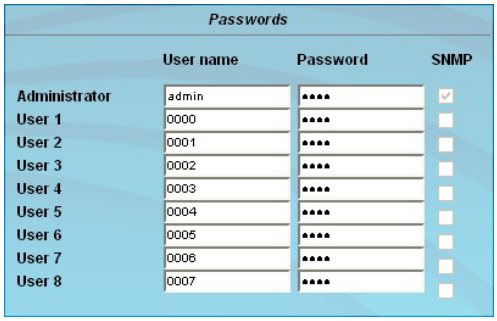
Second section: The trap settings are done here. First select the trap version:
V1 trap normal traps according to SNMPv1 with specified community
V2 trap normal traps according to SNMPv2 with specified community
V2 inform sends information traps according to SNMPv2 and waits for an acknowledgement
V3 trap normal traps according to SNMPv3
V3 inform sends information traps according to SNMPv3 and waits for an acknowledgement
In traps of version 1 and 2 the community can be configured. In traps of version 3 you can configure the user/password and the usage of the network MAC address as engine ID.
These settings must correspond with the configuration of the trap receiver, so that traps are successfully transferred. For this purpose a test trap can be sent by clicking the button "**Test**". If a test trap triggered, all pre-preserved traps are discarded.
Up to 256 IP addresses can be created resp. unlocked to receive the traps.These are listed under "Receiver IP".

Third section: events are configured, whether they (and with which thresholds) trigger traps. There are three ways to **configure a trap**:
- without parameters, e.g. fan on/ off
- with a free selectable parameter for a medium priority
- with a selectable parameter from a list box for a medium priority

Events
Events leading up to trigger an SNMP trap, can be (de-) activated and their parameters can be configured.

References and notes:
All users using SNMPv3 must use passwords with at least 8 characters. For SNMPv3 the SBL supports only the authentication password, not the privacy password. The SBL only supports the MD5 algorithm for authentication password in SNMPv3. Information traps are specific traps that are available since SNMPv2.If the sender gets no „acknowledge" from the receiver, it will retransmit until the „acknowledge" is received.

A SBL module keeps up to 256 information traps that were not sent successfully. If there are more unconfirmed traps, the older traps are discarded and marked in the logbook as „failed". A successfully sent trap is also registered in the logbook. In case of power failure or reboot of the module the non-confirmed traps are lost.
You'll find details in the help text for each event. The critical priorities are set to fixed values that can not be changed.
If the web interface of PALIOS-IPM4 module is open, no changes are possible via SNMP.



Passwords

This setting will only appear when you are logged in as administrator, who has the permission to make administrative changes.

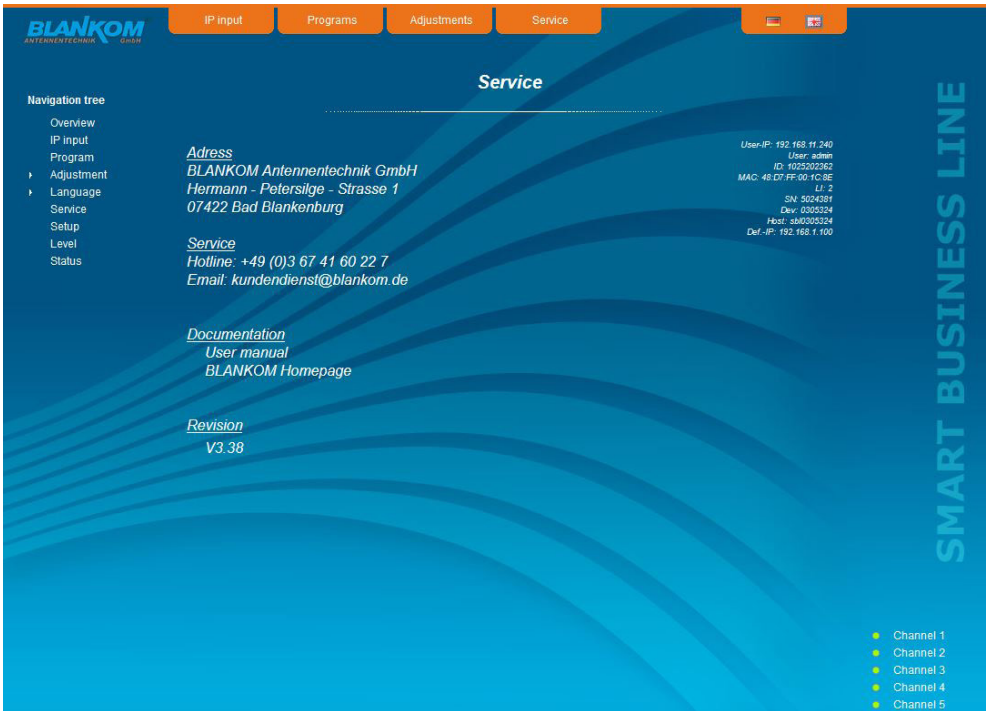
In addition the check box "*GUI settings→User and password check*" has to be enabled. The user ID and password for the administrator can be set in the first line. Up to 8 users and passwords can be created. non-admin users have read-only rights.

The default **password** for the **admin** is: 1111
and for **users**: 0000

If the SNMP option is enabled, for each user a SNMP check box will be displayed. By clicking the box you assign the writing rights for individual users, available since SNMP version 3 (»section SNMP option).

9.2.7 Menu "Service"

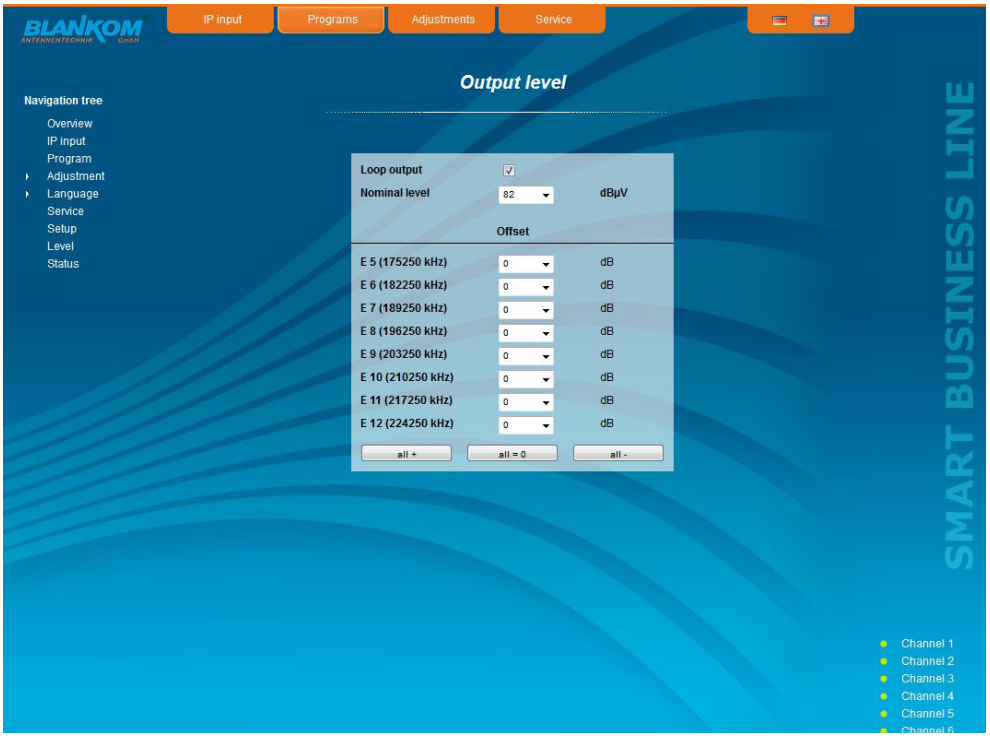
Here you'll find all service information for the PALIOS-IPM4: the BLANKOM service hotline and e-mail address, the manual as pdf file and a link to the BLANKOM homepage where the latest software release is available. Also the currently installed software release is displayed.



9.2.8 Menu "Level"

In the first section you can enable or disable the loop through output. If enabled, select the nominal level for all 8 channels in the range from 62 ... 82 dBµV. If the loop is disabled, the output level of the 8 channels can be set in the range of 76 ... 94 dBµV. Furthermore each channel can be set individually with an offset of +3 ... -6 dB in 0.5 dB steps.

The buttons simplify the offset level setting if you want to make the same adjustments for all 8 channels. The left button increases the offset by 0.5 dB, the right button decreases it by 0.5 dB. With the middle button you'll set the offset of all 8 channels to 0 dB.



8.2.9 Menu ”Status”

It shows an overview of the status of the various components per channel, updated every 5 seconds. Listed are only the current values. mouse over the parameter to display its name in the help box or in the status bar of the browser (according to your configuration).

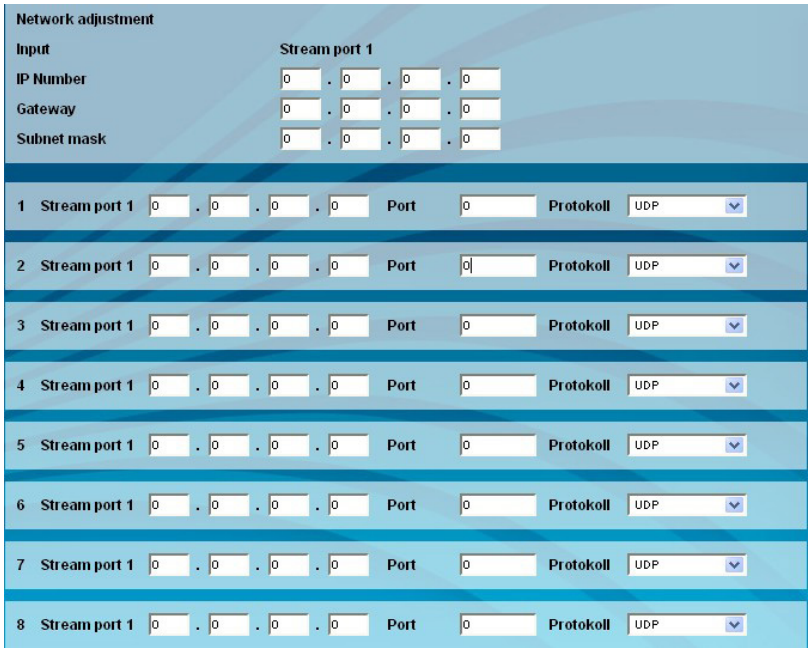
The listing is in 3 groups: input, modulators and system.

With the drop-down menu at the top right, you select whether you get an overview (all) or if only one of the three groups is displayed.

10. Factory settings

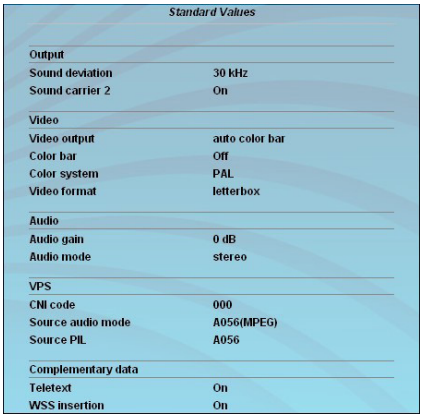
A short pressing of the reset button on the front of the module causes a reboot, i.e. the module restarts and all stored values are restored. If the module must be reset to factory settings, please press the reset button until the “POWER“ and “SYSTEM“ LED will illuminate green permanently again. This process takes about 15 seconds. The factory settings are:

Input parameters

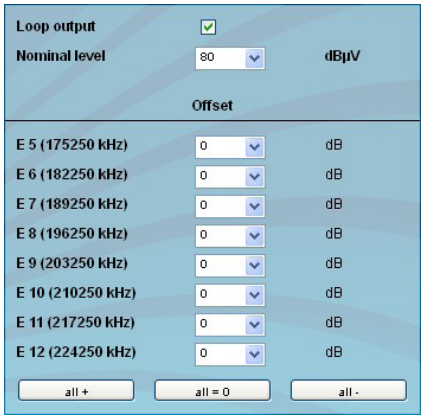

Network adjustment
Input
Stream port 1
IP Number
Gateway
Subnet mask
1 Stream port 1 Port Protokoll UDP
2 Stream port 1 Port Protokoll UDP
3 Stream port 1 Port Protokoll UDP
4 Stream port 1 Port Protokoll UDP
5 Stream port 1 Port Protokoll UDP
6 Stream port 1 Port Protokoll UDP
7 Stream port 1 Port Protokoll UDP
8 Stream port 1 Port Protokoll UDP

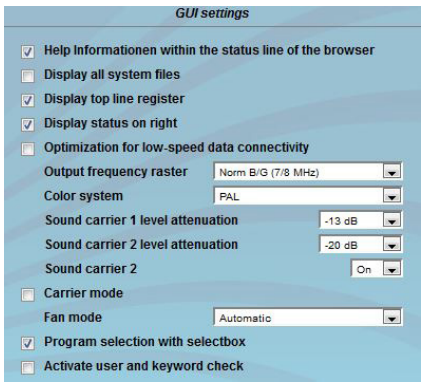
Output parameters

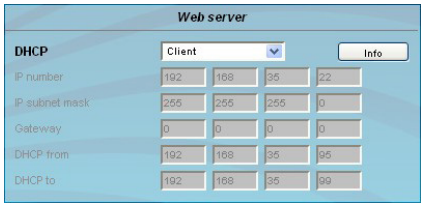
Setup settings



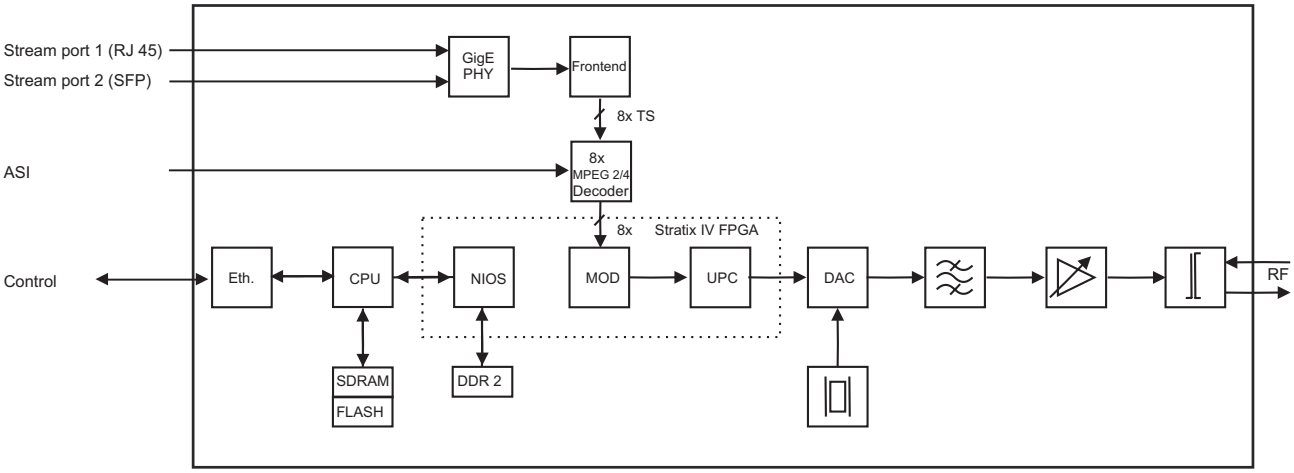
Network settings


Loop output
Nominal level 80 dBµV
Offset
E 5 (175250 kHz) 0 dB
E 6 (182250 kHz) 0 dB
E 7 (189250 kHz) 0 dB
E 8 (196250 kHz) 0 dB
E 9 (203250 kHz) 0 dB
E 10 (210250 kHz) 0 dB
E 11 (217250 kHz) 0 dB
E 12 (224250 kHz) 0 dB
all + all = 0 all -

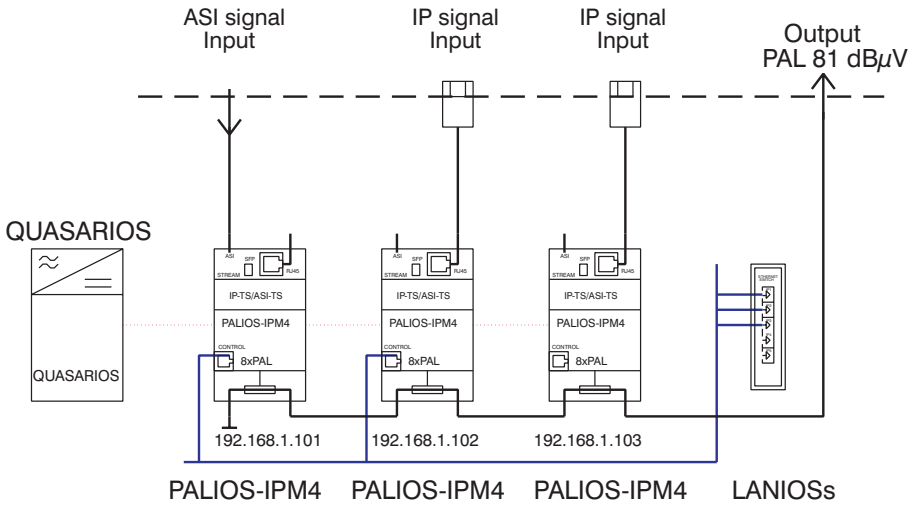

GUI settings
Help Informationen within the status line of the browser
Display all system files
Display top line register
Display status on right
Optimization for low-speed data connectivity
Output frequency raster Norm B/G (7/8 MHz)
Color system PAL
Sound carrier 1 level attenuation -13 dB
Sound carrier 2 level attenuation -20 dB
Sound carrier 2 On
Carrier mode
Fan mode Automatic
Program selection with selectbox
Activate user and keyword check


Web server
DHCP Client Info
IP number 192 168 35 22
IP subnet mask 255 255 255 0
Gateway 0 0 0 0
DHCP from 192 168 35 95
DHCP to 192 168 35 99

11. Block diagram



12. Application example



13. Technical data

IP input (stream port)

Network connection (LAN/ WAN)	Ethernet,10/ 100/ 1000 Base-T
Connector	1x RJ 45, 1x SFP
Protocols	ARP, IPv4, PING
Streaming protocols	UDP, RTP, RTP-FEC
Streaming mode	CBR/ VBR

ASI input

Level range	200 … 880 mV_{pp}
Data rate	270 Mbps
Connector	BNC socket
Impedance	75 Ω
ASI polarity	regular/ inverted

ASI signal processing

Data rate	0.625…75 Mbps
ASI transfer format	continuous, burst
TS transfer format	188, 204 Byte
Signal processing	EN 50083-9 [1]

MPEG decoder

Video	H.264/ AVC Level 4.1 HP, MPEG-2 MP@HL
Audio	MPEG-1 Layer 1&2

TV output

TV standard		B/G, D/K, L, M
Sound type		double carrier FM
Sound carrier frequencies		
	B/G	5.5/ 5.742 MHz
	D/K1	6.5/ 6.25 MHz
	D/K2	6.5/ 5.742 MHz
	D/K3	6.5/ 6.742 MHz
		(each above picture carrier)
Sound mode		mono/ stereo/ dual/ auto (VPS controlled)
Audio deviation 1 mono carrier		30/ 50 kHz
Audio deviation 2 mono carrier		30 kHz
Audio deviation dual sound		30 kHz
Output frequency range		45 ... 862 MHz
Tuning step		1 kHz
Max. output level		97 dBµV (per channel)

Total level settings	
without loop	74 ... 94 dBµV (1 dB steps)
with loop	62 ... 82 dBµV (1 dB steps)
Individual level settings (offset)	+3 ... -6 dB (0.5 dB steps)
Channel allocation	adjacent channel ability
Connector	F socket
Impedance	75 Ω
Return loss	≥ 18 dB 45 MHz - 1.5 dB/ octave

Signal quality

C/N in channel (BW = 4,8 MHz)	≥ 65 dB
S/N ratio parallel sound (unweighted/ weighted)	≥ 65/ 60 dB
Spurious 45...862 MHz	≥ 60 dB
Max. frequency stability	30 kHz
Output level stability	± 0.5 dB

Operating parameters

Voltage/ current	12 V ± 0.2 V/ max. 3.6 A
Residual ripple of the supply voltage	10 mV_{pp}

Environmental conditions

Temperature range	-10 ... +55 °C
Temperature range for data keeping	5 ... 45 °C
Relative humidity	≤ 80 % (non condensing)
Method of mounting	vertical
Location of mounting	splash-proof and drip-proof

Miscellaneous

Dimensions (l x w x h)	76 x 262 x 167 mm
Weight	1,950 g

Delivery content

1x supply cable
1x network cable
1x F connecting cable 140 mm
1x terminating impedance
1x DIN rail clip
1x mounting accessories

14. Glossary

AAC	**A**dvanced **A**udio **C**oding
AM	**A**mplitude **m**odulation
ARP	**A**ddress **R**esolution **P**rotocol
ASI	**A**synchronous **S**erial **I**nterface
ATV	**A**nalogue **Te**l**e**vision
BISS	**B**asic **I**nteroperable **S**crambling **S**ystem
BISS-E	**B**asic **I**nteroperable **S**crambling **S**ystem with **E**ncrypted keys
CNI	**C**ountry and **N**etwork **I**dentification
DVB	**D**igital **V**ideo **B**roadcasting (-C Cable, -S Satellite, -S2 Satellite 2, -T Terrestrial)
FPGA	**F**ield **P**rogrammable **G**ate **A**rray
GbE	**G**iga**b**it-**E**thernet
GUI	**G**raphical **U**ser **I**nterface (grafische Benutzeroberfläche)
HD(TV)	**H**igh **D**efinition (**Te**l**e**vision)
HE-AAC	**H**igh **E**fficiency **A**dvanced **A**udio **C**oding
HTTP	**H**ypertext **T**ransfer **P**rotocol
ID	**Id**entifier
IF	**I**ntermediate **F**requency
IGMP	**I**nternet **G**roup **M**anagement **P**rotocol
IIC	**I**nter-**I**ntegrated **C**ircuit (geräteinterner Datenbus)
IP	**I**nternet **P**rotocol
LED	**L**ight **E**mitting **D**iode
LNB	**L**ow **N**oise **B**lock
MAC	**M**edia **A**ccess **C**ontrol
MPEG	**M**oving **P**icture **E**xperts **G**roup
Nios	Product name for a processor
NIT	**N**etwork **I**nformation **T**able
PCR	**P**rogram **C**lock **R**eference
PID	**P**rogram **Id**entifier
RF	**R**adio **F**requency
SFP	**S**mall **F**orm-factor **P**luggable
SNMP	**S**ingle **N**etwork **M**anagement **P**rotocol
TS	**T**ransport **S**tream
VBI	**V**ertical **B**lanking **I**nformation
VPS	**V**ideo **P**rogramming **S**ystem
WSS	**W**ide **S**creen **S**ignalling

15. Bibliography

[1] EN 50083-9: Cabled distribution systems for television, sound and interactive multimedia signals, part 9: Interfaces for CATV/SMATV headends and similar professional equipment for DVB/MPEG-2 transport streams

[2] EN 60728-11: Cable networks for television signals, sound signals and interactive services Part 11: Safety (IEC 60728-11:2005); German version EN 60728-11:2005

[3] EN 50083-2 : Cabled distribution systems for television and sound signals. Electromagnetic compatibility for equipment; EN 50083-2:2001

[4] RFC 1157 Request for Comments (RFC): RFC Database URL: Http://www.rfc-editor.org/rfc.html

16. Notes on the device software

Device Software of the PALIOS-IPM4
Copyright (C) BLANKOM Antennentechnik GmbH Bad Blankenburg

This device software based on top of Linux 3.6.8 and is a free software: You can redistribute and / or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 2 of the License or (at your option) any later version.

You should have received a copy of the GNU General Public License along with this program. If not so please visit
http://www.gnu.org/licenses/

The source code is available upon request.
Please address your requests to:

BLANKOM Antennentechnik GmbH
Hermann-Petersilge-Straße 1
07422 Bad Blankenburg
Germany

17. Document history

Version	Date	Modification	Author
1.00	04.12.2012	basic document	Häußer
1.01	05.04.2013	revision chapter 12, 15	Häußer
1.02	17.04.2013	revision chapter 8.2.2	Häußer
1.03	10.06.2014	software options (chapter3) added, revision chaper 9 (previously chapter 8)	Appelfelder

Options available upon request. Subject to change due to technical progress.

CE Declaration of Conformity

The Manufacturer BLANKOM Antennentechnik GmbH
Hermann-Petersilge-Str. 1
07422 Bad Blankenburg · Germany

herewith declares the conformity of the product

Product name: IP-/ ASI-TV Transmodulator

Type: PALIOS-IPM4

Product number: 5105.10

according to the following standards

electromagnetic compatibility (2004/ 108/ EC)	DIN EN 50083-2: 2007-04 (EN 50083-2:2006-06)
Low Voltage Directive (2006/ 95/ EC)	DIN EN 60950-1: 2006-04 (EN 60950-1:2006-11)
Restriction of the use of certain Hazardous Substances	DIN EN 50581: 2013-02 (EN 50581:2012)

and additional module-specific standards, which this product is subjected to.

Date: 04.12.2012

Signature:

Dr. Piero Kirchner
(Managing Director)